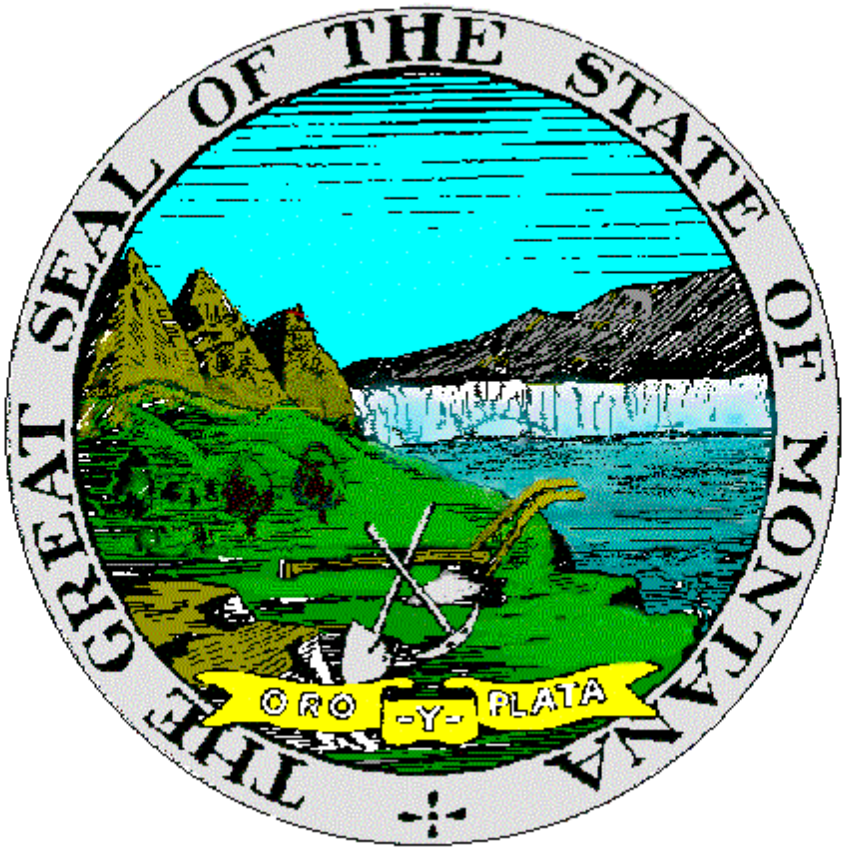
MONTANA HOSPITAL DISCHARGE DATA SYSTEM



DATA DICTIONARY FOR HOSPITAL DISCHARGE DATA

Introducing the Montana Hospital Discharge Data System

The Montana Department of Public Health and Human Services (DPHHS) has a memorandum of agreement with the Montana Hospital Association (MHA) to receive a subset of hospital discharge data elements (Table 1) based on the Uniform Billing 2004 form (UB-04).[1] Although not specifically designed for Public Health use, the UB-04 data are potentially a useful resource for Public Health programs. The Montana Hospital Discharge Data System (MHDDS) allows DPHHS to monitor the burden of many diseases in the population in the absence of disease - specific registries. The MHDDS has inpatient admissions beginning in 2000 and emergency department encounter data from 2010 onward.

The Montana Hospital Discharge Data System Data Elements and Limitations

Each inpatient admission record in the MHDDS has one primary diagnosis code, and may have up to eight secondary codes which reflect a variety of co-morbidities or underlying conditions contributing to the reason for hospitalization. Emergency department encounters have a similar, but not identical file layout. Primary and secondary codes may also describe Supplementary Classification of Factors Influencing Health Status and Contact with Health Services (V-codes); secondary codes may describe Supplementary Classification of External Causes of Injury and Poisoning (E-codes). In addition, records may have up to three E-codes as separate variables. Each record also has a primary and up to five secondary procedure codes. All are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM).[2] Depending on the intent of the analysis, investigators may use the primary diagnosis alone or in combination with secondary diagnoses and V-codes and E-codes to select cases for analysis.

[1] National Uniform Billing Committee, www.nubc.org
[2] http://www.cdc.gov/nchs/icd.htm

Table 1. Variables Included for Inpatient Admissions in the Montana Hospital Discharge Data System

State and county of residence	Primary diagnosis
Sex	Secondary diagnoses (up to 8)
Age	Primary procedure
Admission date	Secondary procedures (up to 5)
Admission type	Dates Of Procedures
Admission source	E-codes (2009 onward)
Discharge date	
Discharge status	Facility identifier
Total charges (2009 onward)	Payer

The MHDDS data sets do not contain individual identifiers so hospital discharges cannot be linked to other data sets, and the data cannot be de-duplicated if individuals are admitted more than once during a time interval of interest. No interstate agreements exist for exchange of data on Montana residents hospitalized out of state.

Inpatient Data Reporting and Completeness

Information about reporting completeness can be found in the directory H:\MHDD\documentation, in the spreadsheet entitled Reporting_Completeness.xlsx. This contains the number of beds for each hospital in Montana, comments on hospital type, and number of discharges reported by the hospital, along with the number included in the Hospital Discharge Data System.

Table 2: Reporting completeness by year

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Participating hospitals	47	44	47	46	48	47	48	46	44	44	42
Cases Reported	104,294	103,138	104,967	109,491	112,861	109,962	99,374	102,316	100,638	94,391	92,262
Percent Of Discharges Reported By Participating Hospitals	97.31%	94.89%	96.13%	98.33%	98.63%	97.79%	90.61%	96.43%	97.74%	98.8%	99.69%

Build Process

Hospital discharge data is currently received on physical media from MHA. It is then transferred to the directory H:\MHDD\data files\MHDD_RAW. The data is in comma delimited format, with an irregular format. A SAS program in H:\MHDD\Programs\BUILDSAS is used to regularize the data, convert numeric to categorical variables, reclassify variables, separate / combine data into yearly datasets, and set length of variables. This program is designed to be self-contained, and capable of running with minimal operator interaction. SPSS can directly read SAS datasets, so future datasets will be made in SAS. Datasets are separated by year of discharge, to parallel MHA.

The dataset dictionary is updated each year, along with the build process. Variables need to be checked for number / character compatibility, especially if MHA changes formats. Likewise, changes such as the change from DRG to MSDRG on October 1, 2007, require updates and new definitions.[3]

Formats

Many variables have nominal numeric or character values. A format gives the meaning of such values. Formats for variables are given in the directory H:\MHDD\Formats, and associated formats for each variable are given in the detail section. For help with formats in SAS, see *My Friend The SAS Format*, by Andrew Karp, available at http://www2.sas.com/proceedings/sugi30/253-30.pdf. For SPSS, value labels are the equivalent of SAS formats.

Data Use Agreement

The Hospital Discharge Data is provided by the Montana Hospital Association, which is the owner of the Hospital Discharge Data. Users should be aware of the data use agreement provided in the directory H:\MHDD\Data Use Log. Data should be properly attributed to MHA, which can be done using the following footnote:

```
FOOTNOTE1 'DATA PROVIDED BY MONTANA HOSPTIAL ASSOCIATION. '
'HOSPITAL DISCHARGE DATA LIMITED TO REPORTING MONTANA HOSPITALS.';
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Inpatient and Emergency Department

Although inpatient and emergency department data are mostly similar, there are a few differences of note. Inpatient visits are referred to as admissions or hospitalizations, to reduce confusion, emergency department visits are referred to as encounters. Although surgical procedure fields are present on inpatient admissions, emergency department (ED) encounters use CPT codes for procedures.[4] CPT codes are

[3] http://en.wikipedia.org/wiki/Diagnosis-related_group

[4] http://www.ama-assn.org/ama/pub/physician-resources/solutions-managing-your-practice/coding-billing-insurance/cpt/about-cpt.page

copyrighted by the American Medical Association; the MHDDS does have current code books dating from 2013 forward. Patient's county of residence is not directly available for ED encounters, it is inferred using a crosswalk provided by the Montana Department of Justice.[5]

[5] https://doj.mt.gov/wp-content/uploads/2011/05/mvmtcitiescountieszips.pdf as of Nov 12, 2013

Inpatient Admission Data Layout For SAS / SPSS Datasets (May not include derived / placeholder variables)						
#	Variable	Type	Length (Bytes)	Format	Informat	Label
1	PTSTATECNTY	Num	8			GEOGRAPHICAL - PATIENT'S STATE AND COUNTY OF RESIDENCE (FIPS)
2	FACILITYID	Num	8			FACILITY ID - MHA PROVIDER LIST FORMAT: Pro_Fac
3	SEX	Char	1			PATIENT'S SEX, M OR F
4	ADMDATE	Num	8	MMDDYY10.	MMDDYY10.	ADMISSION DATE - STORED AS SAS SERIAL DATE
5	ADMSOURCE	Num	8			ADMISSION SOURCE - MHA PROVIDER LIST FORMAT: AD_Source.sas. 'A' value recoded to 10.
6	ADMTYPE	Num	8			ADMISSION TYPE - MHA PROVIDER LIST FORMAT: AD_Type.sas
7	DISCHDATE	Num	8	MMDDYY10.	MMDDYY10.	DISCHARGE DATE - STORED AS SAS SERIAL DATE
8	PAYERCLASS	Num	8			PAYER: THREE CLASSES AND UNKNOWN. FORMAT: Pay_Short.sas
9	PRIM	Char	5			PRIMARY DIAGNOSIS CODE - CHARACTER FORMAT $DX_CLASS.FMT.SAS
10	S1	Char	5			SECONDARY DIAGNOSIS CODE 1 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
11	S2	Char	5			SECONDARY DIAGNOSIS CODE 2 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
12	S3	Char	5			SECONDARY DIAGNOSIS CODE 3 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
13	S4	Char	5			SECONDARY DIAGNOSIS CODE 4 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
14	S5	Char	5			SECONDARY DIAGNOSIS CODE 5 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
15	S6	Char	5			SECONDARY DIAGNOSIS CODE 6 - CHARACTER FORMAT

						$DX_CLASS.FMT.SAS
16	S7	Char	5			SECONDARY DIAGNOSIS CODE 7 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
17	S8	Char	5			SECONDARY DIAGNOSIS CODE 8 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
18	PRINPROC	Char	4			PRINCIPAL PROCEDURE CODE - CHARACTER FORMAT $PR_CLASS.FMT.SAS
19	PROC1	Char	4			PROCEDURE CODE 1 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
20	PROC2	Char	4			PROCEDURE CODE 2 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
21	PROC3	Char	4			PROCEDURE CODE 3 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
22	PROC4	Char	4			PROCEDURE CODE 4 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
23	PROC5	Char	4			PROCEDURE CODE 5 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
24	DRG / MS_DRG	Num	8			CLINICAL DRG - Format: DRG_Val.FMT.sas
25	MDC	Num	8			CLINICAL MDC CATEGORY - Format: MDC_Val.FMT.sas
26	DISCHSTATUS	Num	8			DISCHARGE STATUS - MHA PROVIDER LIST FORMAT: Dis_Status.sas
27	AGE	Num	8	BEST12.	BEST32.	AGE IN YEARS
28	LOS	Num	8	BEST12.	BEST32.	LENGTH OF STAY IN DAYS
29	ECODE1	Char	5			CLINICAL E-CODE 1 - ICD - 9-CM
30	ECODE2	Char	5			CLINICAL E-CODE 2 - ICD - 9-CM
31	ADMSOURCECHAR	Char	2			ADMISSION SOURCE - CHARACTER TO SUPPORT VALUE OF 'A'
32	CTYFIPS	Num	3			COUNTY OF RESIDENCE - FIPS
33	STFIPS	Num	3			STATE OF RESIDENCE - FIPS
34	TOTALCHARGE	Num	8	DOLLAR13.2		TOTAL CHARGES FOR HOSPITALIZATION
35	PTZIP	Num	8			PATIENT'S ZIP CODE
36	PRINPROCDATE	Num	8	DATE9.		DATE OF PRIMARY PROCEDURE
37	PROC1DATE	Num	8	DATE9.		DATE OF FIRST

						PROCEDURE
38	PROC2DATE	Num	8	DATE9.		DATE OF SECOND PROCEDURE
39	PROC3DATE	Num	8	DATE9.		DATE OF THIRD PROCEDURE
40	PROC4DATE	Num	8	DATE9.		DATE OF FOURTH PROCEDURE
41	PROC5DATE	Num	8	DATE9.		DATE OF FIFTH PROCEDURE
42	ADYEAR	Num	8			ADMISSION YEAR
43	DISYEAR	Num	8			DISCHARGE YEAR
44	HOSPCTYFIPS	Num	8			GEOGRAPHICAL - HOSPITALS'S COUNTY(FIPS)
45	HOSPTRAUMA	Num	8			HOSPITAL'S TRAUMA LEVEL - FORMAT: TRAUMA.FMT.sas
46	ECODE3	Char	5			CLINICAL E-CODE 3 - ICD - 9-CM
47	PRIMPOA	Char	5			PRESENT ON ADMISSION – PRIMARY DIAGNOSIS

ED Encounter Data Layout For SAS / SPSS Datasets (May not include derived / placeholder variables)				
#	Variable	Type	Len	Label
1	PTSTATECNTY	Num	8	GEOGRAPHICAL - PATIENT'S STATE AND COUNTY OF RESIDENCE (FIPS)
2	FACILITYID	Num	6	FACILITY ID - MHA PROVIDER LIST FORMAT: Pro_Fac
3	SEX	Char	1	PATIENT'S SEX, M OR F
4	ADMDATE	Num	8	ADMISSION DATE - STORED AS SAS SERIAL DATE
5	ADMSOURCE	Num	8	POINT OF ORIGIN CODES. CHANGED JULY 1, 2010. - This item is no longer maintained, use character version
6	ADMTYPE	Num	8	ADMISSION TYPE - MHA PROVIDER LIST FORMAT: AD_Type.sas
7	DISCHDATE	Num	8	DISCHARGE DATE - STORED AS SAS SERIAL DATE
8	PAYERCLASS	Num	8	PAYER: THREE CLASSES AND UNKNOWN. FORMAT: Pay_Short.sas
9	PAYERLONG	Num	8	PAYER: MORE CLASSES - USE FOR SPECIAL PROJECTS ONLY. FORMAT: Pay_Long.sas
10	PRIM	Char	5	PRIMARY DIAGNOSIS CODE - CHARACTER FORMAT $DX_CLASS.FMT.SAS
11	S1	Char	5	SECONDARY DIAGNOSIS CODE 1 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
12	S2	Char	5	SECONDARY DIAGNOSIS CODE 2 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
13	S3	Char	5	SECONDARY DIAGNOSIS CODE 3 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
14	S4	Char	5	SECONDARY DIAGNOSIS CODE 4 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
15	S5	Char	5	SECONDARY DIAGNOSIS CODE 5 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
16	S6	Char	5	SECONDARY DIAGNOSIS CODE 6 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
17	S7	Char	5	SECONDARY DIAGNOSIS CODE 7 - CHARACTER FORMAT $DX_CLASS.FMT.SAS
18	S8	Char	5	SECONDARY DIAGNOSIS CODE 8 - CHARACTER FORMAT $DX_CLASS.FMT.SAS

19	PRINPROC	Char	4	PRINCIPAL PROCEDURE CODE - CHARACTER FORMAT $PR_CLASS.FMT.SAS
20	PROC1	Char	4	PROCEDURE CODE 1 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
21	PROC2	Char	4	PROCEDURE CODE 2 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
22	PROC3	Char	4	PROCEDURE CODE 3 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
23	PROC4	Char	4	PROCEDURE CODE 4 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
24	PROC5	Char	4	PROCEDURE CODE 5 - CHARACTER FORMAT $PR_CLASS.FMT.SAS
25	DISCHSTATUS	Num	8	DISCHARGE STATUS - MHA PROVIDER LIST FORMAT: Dis_Status.sas
26	AGE	Num	8	AGE IN YEARS
27	LOS	Num	8	LENGTH OF STAY IN DAYS
28	ECODE1	Char	5	CLINICAL E-CODE 1 - ICD - 9-CM
29	ECODE2	Char	5	CLINICAL E-CODE 2 - ICD - 9-CM
30	TOTALCHARGE	Num	8	
31	PTZIP	Char	6	
32	PRINPROCDATE	Num	8	DATE OF PRIMARY PROCEDURE
33	PROC1DATE	Num	8	DATE OF FIRST PROCEDURE
34	PROC2DATE	Num	8	DATE OF SECOND PROCEDURE
35	PROC3DATE	Num	8	DATE OF THIRD PROCEDURE
36	PROC4DATE	Num	8	DATE OF FOURTH PROCEDURE
37	PROC5DATE	Num	8	DATE OF FIFTH PROCEDURE
38	CTYFIPS	Num	8	COUNTY OF RESIDENCE - FIPS (DERIVED FROM ZIP CODE)
39	STFIPS	Num	8	STATE OF RESIDENCE - FIPS
40	ADMSOURCECHAR	Char	2	POINT OF ORIGIN CODES. CHANGED FROM SOURCE OF ADMISSION ON JULY 1, 2010. Format: $Point_Char.sas
41	OUTPATIENTFLAG	Num	8	
42	SEXNUM	Num	8	
43	ADYEAR	Num	8	ADMISSION YEAR
44	DISYEAR	Num	8	DISCHARGE YEAR
45	HOSPCTYFIPS	Num	8	GEOGRAPHICAL - HOSPITALS'S COUNTY(FIPS)
46	STATE	Char	2	
47	ADM_DATECHAR	Char	10	
48	DISCH_DATECHAR	Char	10	
50	PRINPROCDATECHAR	Char	10	

51	PROC1DATECHAR	Char	10	
52	PROC2DATECHAR	Char	10	
53	PROC3DATECHAR	Char	10	
54	PROC4DATECHAR	Char	10	
55	PROC5DATECHAR	Char	10	
56	PRINCPT	Char	15	PRINICPAL CPT: CODE AND MODIFIERS
57	PRINCPTDATECHAR	Char	10	
58	CPT1	Char	15	CPT CODE 1: CODE ALONE
59	CPT1DATECHAR	Char	10	
60	CPT2	Char	15	CPT CODE 2: CODE ALONE
61	CPT2DATECHAR	Char	10	
62	CPT3	Char	15	CPT CODE 3: CODE ALONE
63	CPT3DATECHAR	Char	10	
64	CPT4	Char	15	CPT CODE 4: CODE ALONE
65	CPT4DATECHAR	Char	10	
66	CPT5	Char	15	CPT CODE 5: CODE ALONE
67	CPT5DATECHAR	Char	10	
71	HOSPTRAUMA	Num	8	HOSPITAL'S TRAUMA LEVEL - FORMAT: TRAUMA.FMT.sas THIS VARIABLE IS SUBJECT TO CHANGE AND CURRENTLY AVAILABLE FOR 2008 ONLY
72	PRINCPTDATE	Num	8	DATE OF PRIMARY CPT OPERATION
73	PRINCPTCODE	Char	15	PRINCIPAL CPT: CODE ALONE LABEL
74	CPT1DATE	Num	8	CPT CODE &.: DATE
75	CPTCODE1	Char	15	CPT CODE 1: CODE AND MODIFIERS
76	CPT2DATE	Num	8	CPT CODE &.: DATE
77	CPTCODE2	Char	15	CPT CODE 2: CODE AND MODIFIERS
78	CPT3DATE	Num	8	CPT CODE &.: DATE
79	CPTCODE3	Char	15	CPT CODE 3: CODE AND MODIFIERS
80	CPT4DATE	Num	8	CPT CODE &.: DATE
81	CPTCODE4	Char	15	CPT CODE 4: CODE AND MODIFIERS
82	CPT5DATE	Num	8	CPT CODE &.: DATE
83	CPTCODE5	Char	15	CPT CODE 5: CODE AND MODIFIERS

SERIAL NUMBER

The serial number is a unique 10 digit number assigned to reach record by the Hospital Discharge Data System. It is designed to simplify selection of records.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
RECORDSERIAL	2000000001, 2000000002, etc.	None			Inpatient, ED

PATIENT'S COUNTY OF RESIDENCE

The patient's county of residence is given in five digit FIPS format. The first two digits represent the state of residence, and the last three represent county of residence. Because the variable is numeric, a leading zero digit is dropped. A table of state codes can be found at http://www.economicexpert.com/a/FIPS:state:code.htm. A table of Montana counties of residence can be found online at http://mcdc2.missouri.edu/webrepts/commoncodes/ccc_mt.html. For non-Montana residents, county of residence may be set to 999, depending on the data year.

For inpatient admissions, county of residence is directly available. For ED encounters in 2010-2012, county of residence is derived from patient's zip code, using a crosswalk developed by the Montana Department of Justice (www.doj.mt.gov/driving/mtcitiescountieszips.pdf). County of residence is not available in de-identified datasets, although state of residence is still available.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
PTSTATECNTY	1004,30001		None	Can be converted respectively to the following:	Inpatient, ED
STFIPS	1-78,99	ST_FIPS.FMT.SAS		30 is the value for Montana. STFIPS = INPUT(SUBSTR(PUT(PTSTATECNTY,5.),1,2),2.);	Inpatient, ED
CTYFIPS	1-111,999 (for Montana)	COUNTIES_FIPS.FMT		CTYFIPS = MOD(PTSTATECNTY,1000);	Inpatient, ED

FACILITY ID

Facility ID is an eight digit variable for facility. Variables for county and trauma level are derived from facility ID. If the format Pro_Fac is altered, the associated informats need to be altered correspondingly. In 2010, due to an export error, the last two digits of facility ID were cut off, which was corrected in the build program. The SAS format is adjusted accordingly. Facility ID and derived variables are not available in de-identified datasets.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
FACILITYID	30000501 – 30999901 (2000-2007), 300005 – 309999 (2010)	Pro_Fac.sas	None	FACILITYID was exported from MHA improperly in 2010. This is corrected in the build program.	Inpatient, ED
HOSPCTYFIPS	1-111	COUNTIES_FIPS.FMT		This is the county that the hospital is located in. One should treat this variable carefully, as it can be used to identify hospitals. HOSPTOCTY.INMFT.sas is used as an informat.	Inpatient, ED
HOSPTRAUMA	2-6,9	TRAUMA.FMT.sas		This is the trauma level designation, currently applied to 2010. This currently has trauma level designation as of Dec 28, 2009, however it is subject to change. HOSPTOTRAUMA.INFMT.sas is used as an informat.	Inpatient, ED

SEX

Sex is the gender of the patient. It is a length one character variable, with a numeric crosswalk.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
SEX	M,F,U		None		Inpatient, ED
SEXNUM	1,2,9			SEXNUM is a numeric recode of sex, to be compatible with other datasets which use numeric sex, such as population and vital stats data.	Inpatient, ED

ADMISSION DATE

Admission date is the patient's date of admission. It is stored as a SAS serial date (number of days since Jan 1, 1960). Thus, it displays with values such as 08/04/2000 in SAS and 15-Dec-2000 in SPSS.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
ADMDATE	SAS Serial Date	MMDDYY10.	None	Variables can be derived using SAS date functions such as YEAR, DAY, MONTH.	Inpatient, ED
ADYEAR	2000-2010			Created using SAS data function YEAR()	Inpatient, ED

ADMISSION SOURCE (Point Of Origin)

Admission source is a two digit numeric code for the patient's source of admission. Effective June 1, 2010, value 7 was removed due to overuse and misuse and the variable was formally changed to point of origin (http://www.tha-hin.com/files/ub-04/Point-of-Origin-Code-7-Talking-points-NUBC.pdf). For more information on point of origin codes, see the CHIMA reference sheet (http://www.chima.org/downloads/DQ/2011/PointOfOriginReferenceSheet20112012.pdf). The variable name was kept to maintain legacy with previous code.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	**Current Values (2010 forward)**	**Associated Formats**	**Legacy Values**	**Comments**	**Datasets**
ADMSOURCE				Numeric values do not reflect expanded coding. Variable exists only for legacy code.	Inpatient, ED
ADMSOURCECHAR	'1'-'19', 'A'-'F'	$Point_Char.sas		Admission source originally comes in as a character variable, this retains the character values, which are recoded to 10 for the numeric variable.	Inpatient, ED

```
VALUE $Point_Char (NOTSORTED)
'01' = 'Non-Health Care Facility'
'02' = "Clinic or Physician's Office"
'04' = 'Transfer from a different hospital'
'05' = 'Transfer from a skilled nursing facility'
'06' = 'Transfer from another type of health care facility'
'07' = 'Emergency Room (Discontinued July 1, 2010)'
'08' = 'Court / Law Enforcement'
'09','19' = 'Information not available'
'A' = 'Transfer from a Critical Access Hospital (Discontinued)'
'11'  = 'Newborn - Normal Delivery (Discontinued)'
'12'  = 'Newborn - Premature Delivery (Discontinued)'
'13'  = 'Newborn - Sick Delivery (Discontinued)'
'14'  = 'Newborn - Extramural Birth (Discontinued)'
/*New on UB-04*/
'15'  = 'Newborn - Born In Hospital'
'16'  = 'Newborn - Transfer'
/*B & C should not appear in hospitalization data, useful to know*/
'B' = 'Transfer from another Home Health Agency'
'C' = 'Readmission to same Home Health Agency'
'D' = 'Transfer from hosp IP in same fac - sep clm to payer'
'E' = 'Transfer from ambulatory surgery center'
'F' = 'Transfer from Hospice Program'
```

```
OTHER = 'Other / Unknown'
```

ADMISSION TYPE

Admission type is a one digit variable for type of admission, such as 'emergency,' 'urgent,' etc..

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	**Current Values (2010 forward)**	**Associated Formats**	**Legacy Values**	**Comments**	**Datasets**
ADMTYPE	1,2,3,4,5,9	AD_Type.sas	None	Values can be found in the associated SAS format, in the directory H:\MHDD\Formats.	Inpatient, ED

```
1 = 'Emergency'
2 = 'Urgent'
3 = 'Elective'
4 = 'Newborn'
5 = 'Trauma Center'
OTHER = 'Other / Unknown'
```

DISCHARGE DATE

Discharge date is the patient's date of discharge. It is stored as a SAS serial date (number of days since Jan 1, 1960). Thus, it displays with values such as 08/04/2000 in SAS and 15-Dec-2000 in SPSS.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
DISCHDATE	SAS Serial Date	MMDDYY10.	None	Variables can be derived using SAS date functions such as YEAR, DAY, MONTH.	Inpatient, ED
DISYEAR	2000-2010			Created using SAS data function YEAR()	Inpatient, ED

PAYER IDENTIFIER

For inpatient admissions in all years but 2008, 2009, and 2011, and for all years of emergency department encounter data, payer is provided from MHA using an extensive list of specific carriers. In 2008, 2009, and 2011, payer is provided by MHA from a less extensive set of options. For larger categories of payer, this difference was small, but we did find changes in self-pay and worker's compensation payment which were due to definition. Payer is collapsed into four classes for de-identified data, and nine classes for identified data.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
PAYERCLASS	1,2,3,9	Pay_Short.sas		This variable contains three classes of payer, Medicare, Medicaid / Other Government, Commercial, and Other.	Inpatient, ED
PAYERLONG	1-9	Pay_Long.sas		This variable has more classes, and is needed for some projects.	Inpatient, ED

```
Pay_Short.sas:
1 = 'Commercial'
2 = 'Medicare'
3 = 'Medicaid / Other Government'
4,9 = 'Other / Unknown'

Pay_Long.sas:
1 = 'Commercial'
2 = 'Medicare'
3 = 'Medicaid'
5 = "Other Gov't (Military / IHS)"
6 = "Worker's Comp"
7 = 'Self Pay'
8 = 'Charity'
9 = 'Other / Unknown'
```

PRIMARY DIAGNOSIS, SECONDARY DIAGNOSIS (1-8)

Primary diagnosis and secondary diagnosis codes (up to 8) are stored as ICD – 9 –CM codes, and can be looked up at the website http://www.icd9data.com, among others. They are stored without the decimal point, and as up to five byte character values.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
PRIM, S1-S8	'0020 '- 'V7283'	See table below	None	Classification can be somewhat difficult because of SAS collating sequences. Created formats use blanks for lower values, (to capture when less information is coded) and 'ZZ' for upper values (beyond the natural range of 9). Because of the large number of uses of primary and secondary diagnosis codes, many formats have been created.	Inpatient, ED

Associated Formats	
Name	Description
$DX_CLASS.FMT.SAS	(very specific, but abbreviation heavy)
$NCHSCLASS	(based on a report from NCHS)
$ICD_9_major	(major categories only)

```
"001  "- "139ZZ" = "Infectious and parasitic diseases"
"140  "- "239ZZ" = "Neoplasms"
"240  "- "279ZZ" = "Endocrine, nutritional and metabolic diseases, and immunity
disorders"
"280  "- "289ZZ" = "Diseases of the blood and blood-forming organs"
"290  "- "319ZZ" = "Mental disorders"
"320  "- "359ZZ" = "Diseases of the nervous system"
"360  "- "389ZZ" = "Diseases of the sense organs"
"390  "- "459ZZ" = "Diseases of the circulatory system"
"460  "- "519ZZ" = "Diseases of the respiratory system"
"520  "- "579ZZ" = "Diseases of the digestive system"
"580  "- "629ZZ" = "Diseases of the genitourinary system"
"630  "- "676ZZ" = "Complications of pregnancy, childbirth, and the puerperium"
"680  "- "709ZZ" = "Diseases of the skin and subcutaneous tissue"
"710  "- "739ZZ" = "Diseases of the musculoskeletal system and connective tissue"
"740  "- "759ZZ" = "Congenital anomalies"
"760  "- "779ZZ" = "Certain conditions originating in the perinatal period"
"780  "- "799ZZ" = "Symptoms, signs, and ill-defined conditions"
"800  "- "999ZZ" = "Injury and poisoning"
"E00  "- "E99ZZ" = "External causes of injury"
```

"V00 "- "V99ZZ" = "Supplemental classification"

PRINCIPAL PROCEDURE, PROCEDURE 1 - 5

Principal procedure, and procedure 1 – procedure 5 are 4 byte character procedure codes, stored without the decimal point. These should be treated as character variables, as leading zeros are significant. Thus, the code 050 is different than the code 50. The codes are ICD-9-CM procedure codes, not CPT codes, as previously stated. Beginning in 2010, dates of each procedure are available.
The format is based upon information at: http://www.cms.hhs.gov/ICD9ProviderDiagnosticCodes/06_codes.asp. A link to the txt file containing the raw values can be found in the SAS format.
Alternatively, one drop down website for ICD-9-CM procedures is http://icd9cm.chrisendres.com/index.php?action=procslist.
Although procedure fields are found on ED encounter data, they are always blank from 2010-2012. Therefore, it is considered to be on inpatient admissions only.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
PRINPROC PROC1-PROC5		$PR_CLASS.FMT.SAS	None	Current format is based upon a format provided by NCHS.	Inpatient
PRINPROCDATE PROC1DATE – PROC5DATE				Date variable of each procedure. These are stored as SAS serial dates, but print in human readable form in both SAS and SPSS.	Inpatient

DIAGNOSIS RELATED GROUP

Diagnosis related group is a numeric variable relating to Medicare reimbursement. Major diagnostic categories are supergroups of DRGs.

Diagnosis-related group (**DRG**) is a system to classify hospital cases into one of approximately 500 groups, also referred to as DRGs, expected to have similar hospital resource use, developed for Medicare as part of the prospective payment system. DRGs are assigned by a "grouper" program based on ICD diagnoses, procedures, age, sex, discharge status, and the presence of complications or comorbidities. DRGs have been used in the US since 1983 to determine how much Medicare pays the hospital, since patients within each category are similar clinically and are expected to use the same level of hospital resources. DRGs may be further grouped into Major Diagnostic Categories (MDCs).
http://en.wikipedia.org/wiki/Diagnosis-related_group
Beginning in 2008, MHDDS data switched over to MS_DRG. MS_DRG is a similar set of groupings, but codes are completely remapped. For example, spinal procedures are DRG 004, 531, and 532, but MS_DRG 028, 029, and 0303. Because the variables are not compatible, DRG is found on records from 2000-2007, and MS_DRG is always missing, while MS_DRG is found on records from 2008-2010, while DRG is always missing.

The **Major Diagnostic Categories** (MDC) are formed by dividing all possible principal diagnoses (from ICD-9-CM) into 25 mutually exclusive diagnosis areas.

The diagnoses in each MDC correspond to a single organ system or etiology and, in general, are associated with a particular medical specialty. MDC 1 to MDC 23 are grouped according to principal diagnoses. Patients are assigned to MDC 24 (Multiple Significant Trauma) with at least two significant trauma diagnosis codes (either as principal or secondaries) from different body site categories. Patients assigned to MDC 25 (HIV Infections) must have a principal diagnosis of an HIV Infection or a principal diagnosis of a significant HIV related condition and a secondary diagnosis of an HIV Infection.

MDC 0, unlike the others, can be reached from a number of diagnosis/procedure situations. It is reached due to certain procedures, all of which are transplant-related. This is due to the expense involved for the transplants so designated and due to the fact that these transplants can be needed for a number of reasons which do not all come from one diagnosis domain. DRGs which reach MDC 0 are assigned to the MDC for the principal diagnosis instead of to the MDC associated with the designated DRG.

MDC codes, like DRG codes, are primarily a claims and administrative data element unique to the United States medical care reimbursement system.

http://en.wikipedia.org/wiki/Major_Diagnostic_Category

Diagnosis related group and major diagnostic category are not found on ED encounters, as it related to payment for inpatient admissions.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
DRG			None	DRG 24 is used through 2007.	Inpatient
MS_DRG				Beginning in 2008, MS_DRG is used.	Inpatient

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
MDC	0, 1-25		None		Inpatient

```
0 ='Pre-MDC '
1 ='Nervous System '
2 ='Eye '
3 ='Ear, Nose, Mouth And Throat '
4 ='Respiratory System '
5 ='Circulatory System '
6 ='Digestive System '
7 ='Hepatobiliary System And Pancreas '
8 ='Musculoskeletal System And Connective Tissue '
9 ='Skin, Subcutaneous Tissue And Breast '
10= 'Endocrine, Nutritional And Metabolic System '
11= 'Kidney And Urinary Tract '
12= 'Male Reproductive System '
13= 'Female Reproductive System '
14= 'Pregnancy, Childbirth And Puerperium '
15= 'Newborn And Other Neonates (Perinatal Period) '
16= 'Blood and Blood Forming Organs and Immunological Disorders '
17= 'Myeloproliferative DDs (Poorly Differentiated Neoplasms) '
18= 'Infectious and Parasitic DDs '
19= 'Mental Diseases and Disorders '
20= 'Alcohol/Drug Use or Induced Mental Disorders '
21= 'Injuries, Poison And Toxic Effect of Drugs '
22= 'Burns '
23= 'Factors Influencing Health Status '
24= 'Multiple Significant Trauma '
25= 'Human Immunodeficiency Virus Infection '
```

DISCHARGE STATUS

Discharge status is a numeric variable indicating the status of patients.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	**Current Values (2010 forward)**	**Associated Formats**	**Legacy Values**	**Comments**	**Datasets**
DISCHSTATUS	1-72	Dis_Status.sas	None		Inpatient, ED

Associated Formats	
Name	Description
Dis_Status.sas	Provides a large level of detail. Collapsed short format below is generally preferable.
Dis_Short.sas	Contains fewer categories

```
1  = 'Routine Discharge (to home or self care)'
2,3,4,5,61,62,63,64,65,43,9,10,11,51,71,72,30,31,6,8,50  =
'Discharge/transferred to another health care facility or home
with care'
20,21,40,41,42 = 'Expired'
7,OTHER = 'Other / Unknown'
```

AGE

Age is the patient's age in years.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
AGE	0-108		None	Formats can be brought in as needed, including formats for age adjustment, etc..	Inpatient

LENGTH OF STAY

Length of stay is the length of the hospitalization in days.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
LOS	0-365		None	Length of stay is heavily right skewed, so comparisons may be difficult. 80% of hospitalizations are five days or less.	Inpatient, ED

E-CODES

External Cause Of Injury Codes (E-codes) are used for external causes of injury. These are five byte character variables, coded using ICD – 9 – CM codes in the E group. System upgrades greatly increased the proportion of injury hospitalizations in the second half of 2008, therefore E-codes starting in calendar year 2009 can be considered reliable. The MHDDS report *Results of the E-Code Quality Improvement Survey, 2011* has further information on the increase in proportion of injury hospitalizations with E-codes. ED encounter data from 2010-2012 currently has two E-codes.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
ECODE1 and ECODE2 and ECODE3 (2009 forward inpatient; 2013 forward ED)	ICD – 9 – CM codes in the E range.		None	Until the second half of 2008, E-coding was sporadic. A change in software greatly increased the number of E-coded records, starting in the second half of 2008.	Inpatient, ED

TOTAL CHARGES

Total charges are first available in 2010, due to an expanded agreement with MHA. The agreement with MHA limits the use of total charges to compare burden at the statewide level, comparisons between hospitals, or even regions, are not permitted by the agreement. The MHDDS has made no attempt to adjust charges for inflation or rising health care costs. Due to a transmission issue, charges are missing for roughly 25% of ED encounters in 2012.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
TOTALCHARGE				Total charges for the hospitalization, in USD.	Inpatient, ED

PATIENT'S ZIP CODE

Patient's zip code of residence is first available in 2010, as part of the expanded fields available from MHA.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
PTZIP				Five digit zip code for each patient.	Inpatient, ED

CPT Codes

CPT codes are used to indicate specific procedures performed on patients. CPT codes are copyrighted by the American Medical Association, a comprehensive listing of such codes is not publically available. The MHDDS does keep CPT codebooks available. CPT codes are available for ED data, but not available for inpatient admissions.

MONTANA HOSPTIAL DISCHARGE DATA SYSTEM VARIABLE NAMES					
Current Name	Current Values (2010 forward)	Associated Formats	Legacy Values	Comments	Datasets
PRINCPT, CPT1-CPT5	Character, 5-11 characters in length			Contains modifiers	ED
PRINCPTDATE, CPT1DATE- CPT5DATE	Numeric, SASDate				ED
PRINCPTCODE, CPT1CODE-CPT5CODE	Character, Five-digit				ED